

Living High – Living Low
Water Quality Issues in the Federated States of Micronesia
A Power Point Presentation by Jim Currie

At the
American Rainwater Catchment Systems Association
Conference (ARCSAC)
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Federated States of Micronesia

M I C R O N E S I A

M E L A N E S I A

A U S T R A L I A

N E W Z E A L A N D



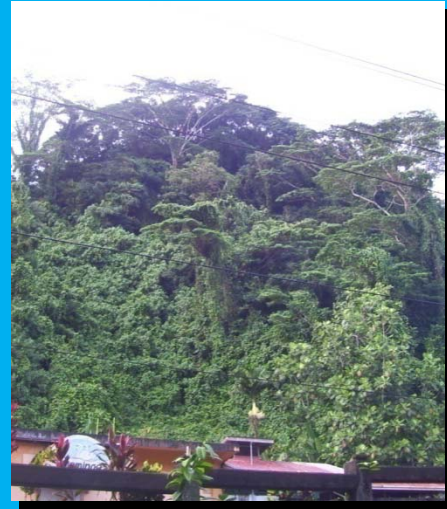
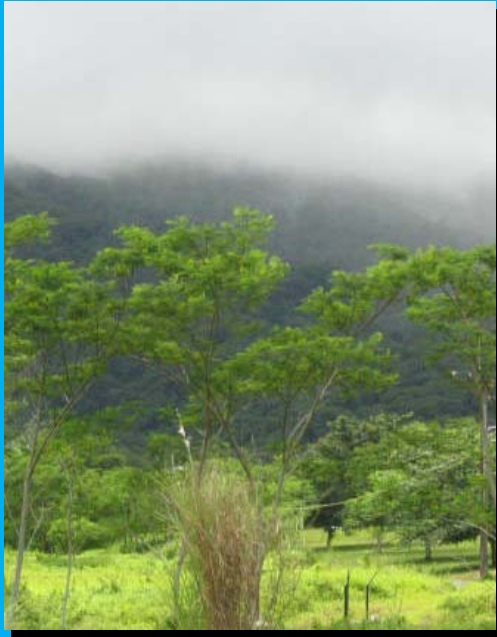
- *4 States, 107,000 people*
- *Culturally Diverse*
- *607 islands*
- *270 sq. miles land area*
- *1 million + sq. miles of ocean*



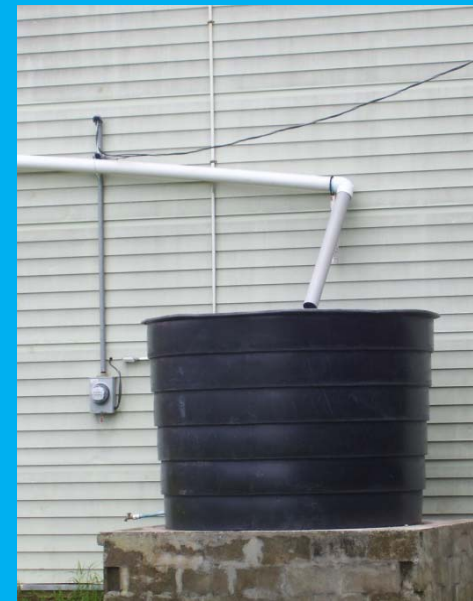
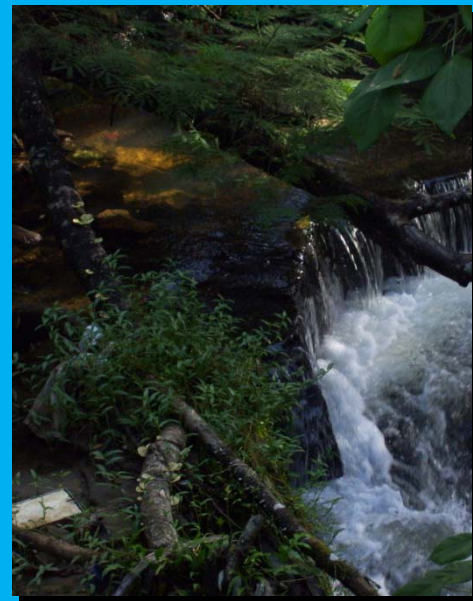
High volcanic island



Low coral atoll island



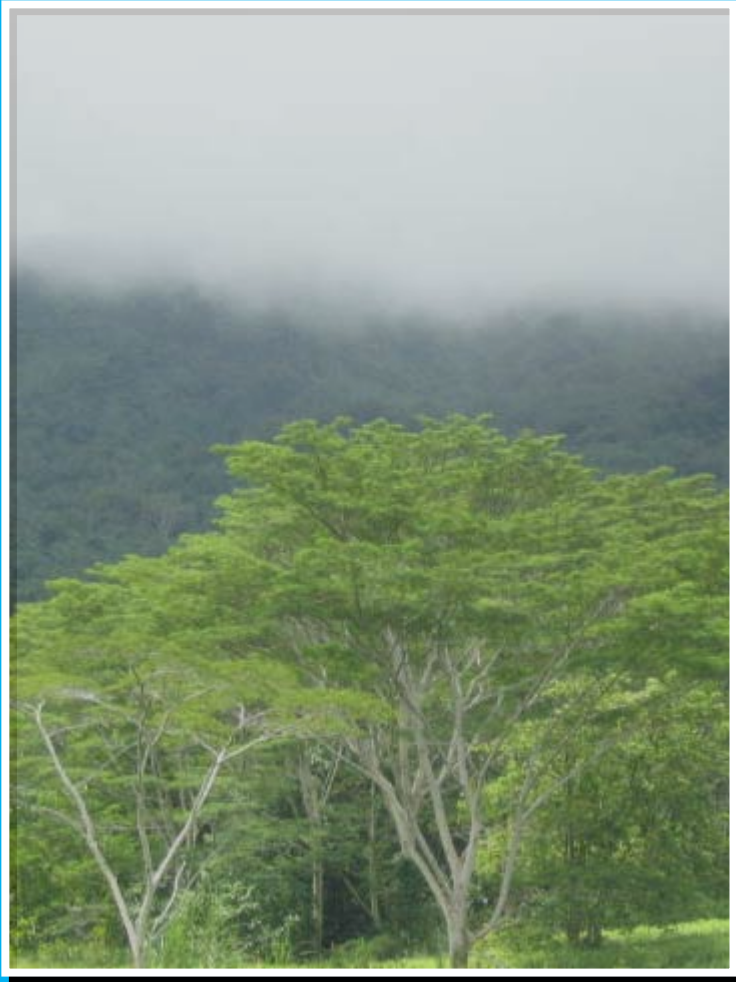
- *tropical oceanic climate - consistently warm and humid-81°F (27°C)*
- *wettest months are April and May*
- *Typhoon season is between August and December*
- *Rainfall is extremely high on the high volcanic islands of Kosrae, Pohnpei and Chuuk and can exceed 400 inches.*



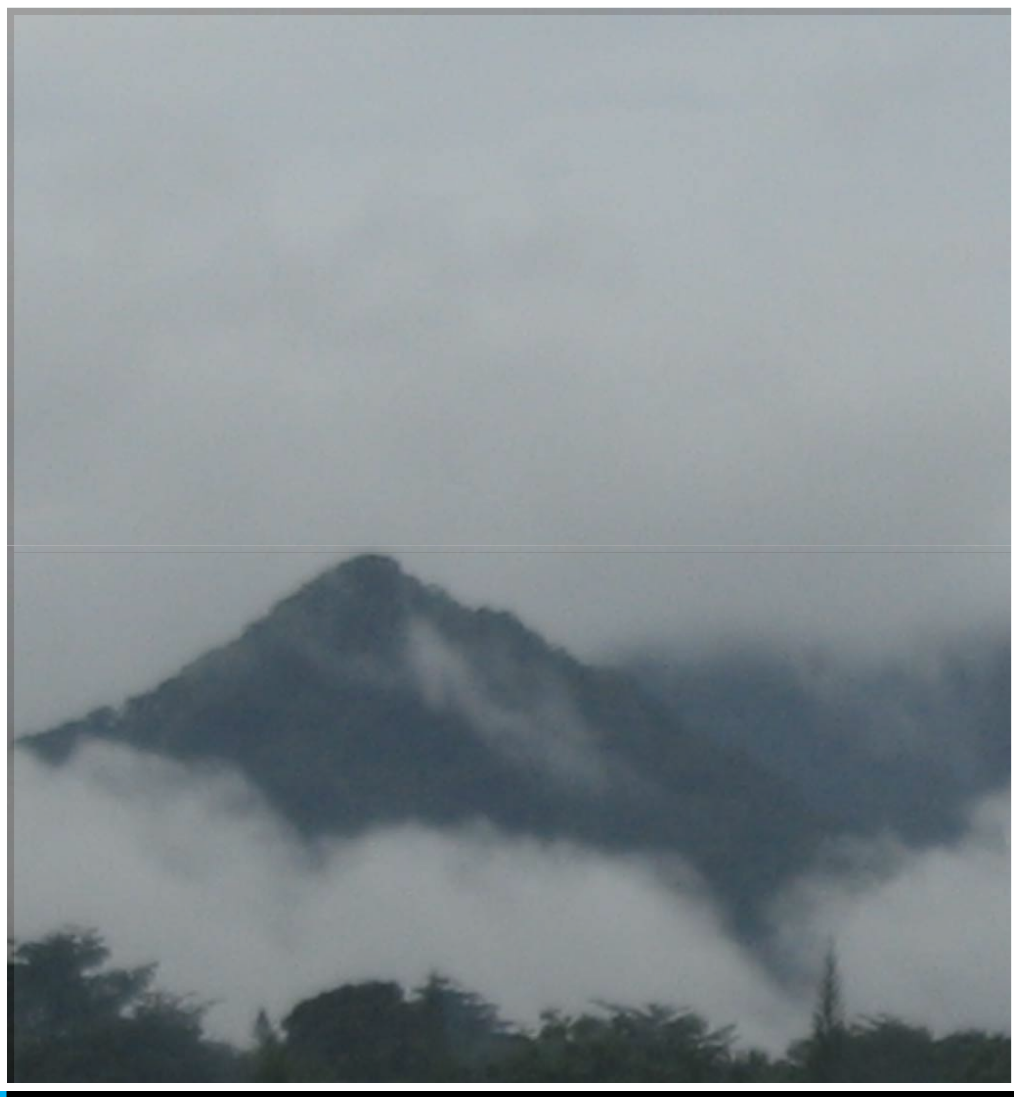
Fresh water is a fundamental resource for any small island nation and the FSM is no exception. About a third of the FSM population has access to piped water, usually from village river sources that are dammed high up in the watershed and piped to the homes of the community.



- *River flows provide the main source of water supply*
- *Susceptible to occasional drought and pollution*
- *Safeguarded by protecting forests. Forests equal water.*
- *Native forests produce water and protect watersheds, allow for water retention and seepage into the ground, and also continuously cycle this water through the transpiration process from the roots up through the leaves and ultimately into the air, where the cloud forests continuously produce their own super wet climate conditions.*



Typical low hanging clouds



*Rapid transpiration and
recycling in the cloud forest*



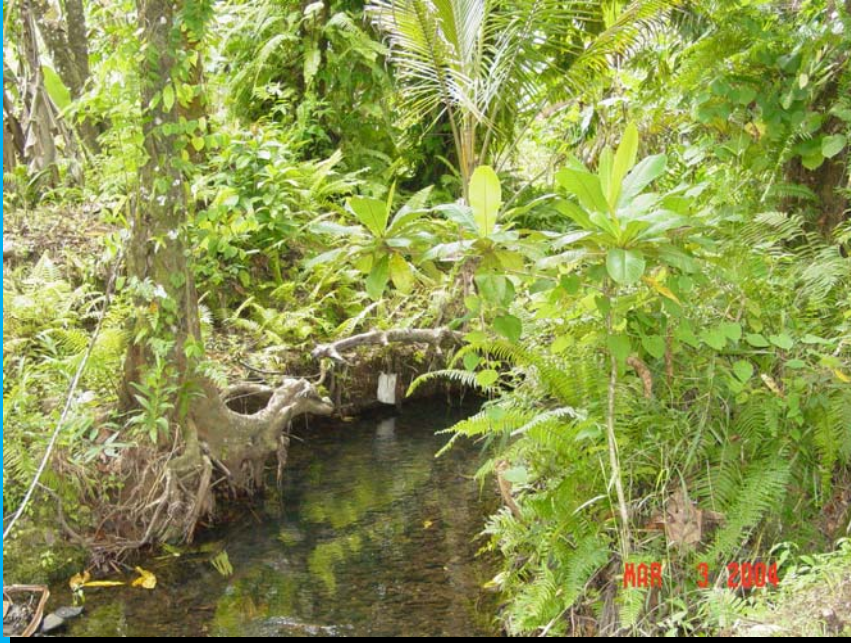
The supply of safe and clean water for drinking, cooking and cleaning is an on-going central issue in the FSM.



Roof water catchment systems have been popular in the past and still are used extensively in the atoll islands and some rural areas of all states. Shallow wells are still used on the atoll islands however with rising ocean levels there is concern of saltwater intrusion. Some wells have been drilled to serve communities on the higher islands. With the availability of treated water supplies; those families that can afford this service are increasingly using this source. Many roof catchments in urban areas are falling into disrepair and neglect.



Various catchment systems



*Clean water and muddy water
source*





Clean-looking water is not always safe to drink



Running water on roadside and multiple pipe catchment from stream



Stream catchment



End of stream catchment



Education effort includes training youths to test water and water survey

In 2002 the first trial salt water distill unit was by NRCS Pohnpei and a team of volunteer on one of the outer islands in Pohnpei – Kapingamarangi .







Solar Still in the island of Siis, Chuuk State

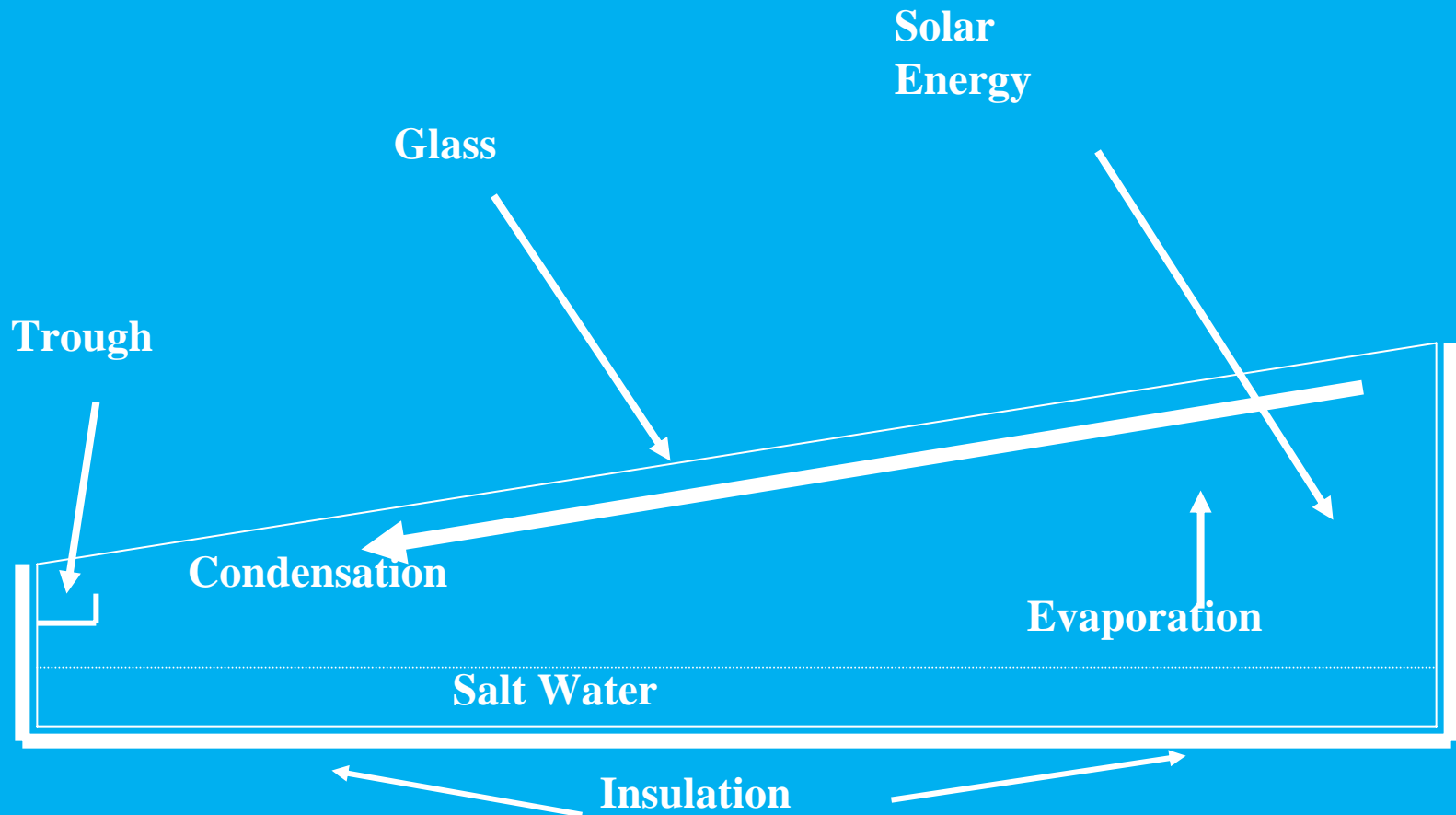
- *As the results of the success of the solar still trial on the atoll island of Kapingamarangi, it became known in the rest of the Micronesia.*
- *This unit will produce about 5 gallons of water a day.*
- *Interest is shown by potential cooperators who have visited the agency or requested help for generating similar projects on their home islands*
- *A smaller scale demo unit is being used by youths in*



FSM Officials examining solar still unit at the FSM Capital .

Solar Distiller Basics

The basic principles of solar water distillation replicates the way nature makes rain. The sun's energy heats water to the point of evaporation. As the water evaporates, water vapor rises, condensing on a glass surface for collection. This process removes impurities such as salts and heavy metals as well as eliminates microbiological organisms.





Pohnpei – children on the atoll islands of Pingelap



Pohnpei Sakau ceremony





Traditional ceremonial dress



Pohnpei Sakau ceremony





Pohnpei - eight of 12 brothers and sisters...



Yap – water quality survey and clean-up



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*Kosrae - house to house
water survey*



*Pigpen operated by
college students*



Kosrae's Sleeping Lady basking in Sunset



Chuuk's shoreline